

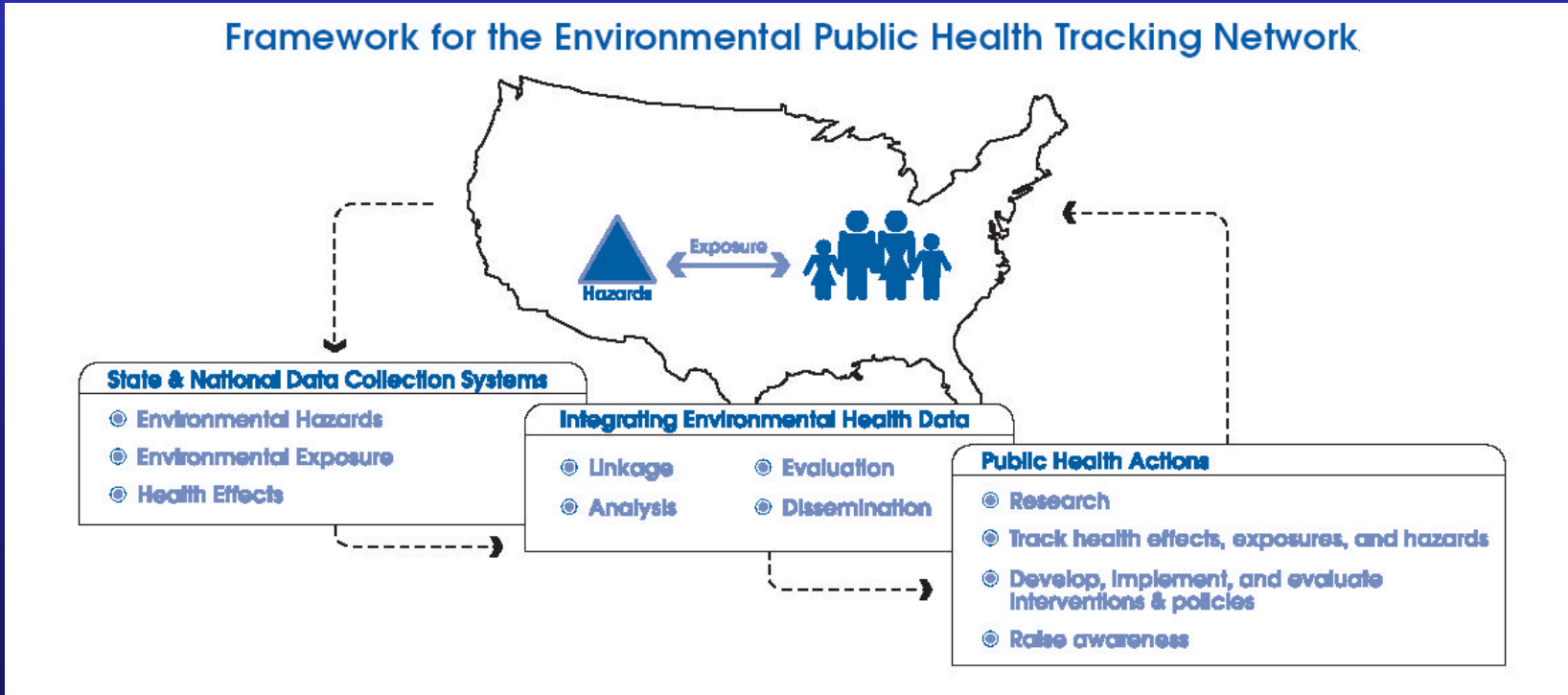
Environmental Public Health Tracking in Maine

Year-2 Update

Andrew Smith, S.M., Sc.D.

State Toxicologist & Director, Environmental Health Unit

Bureau of Health / Department of Human Services



Environmental Public Health Tracking

- *The Need* – A surveillance system that would allow us to quickly detect carbon monoxide poisoning during wide-spread power outages.



January 98 Ice Storm

Portland Press Herald

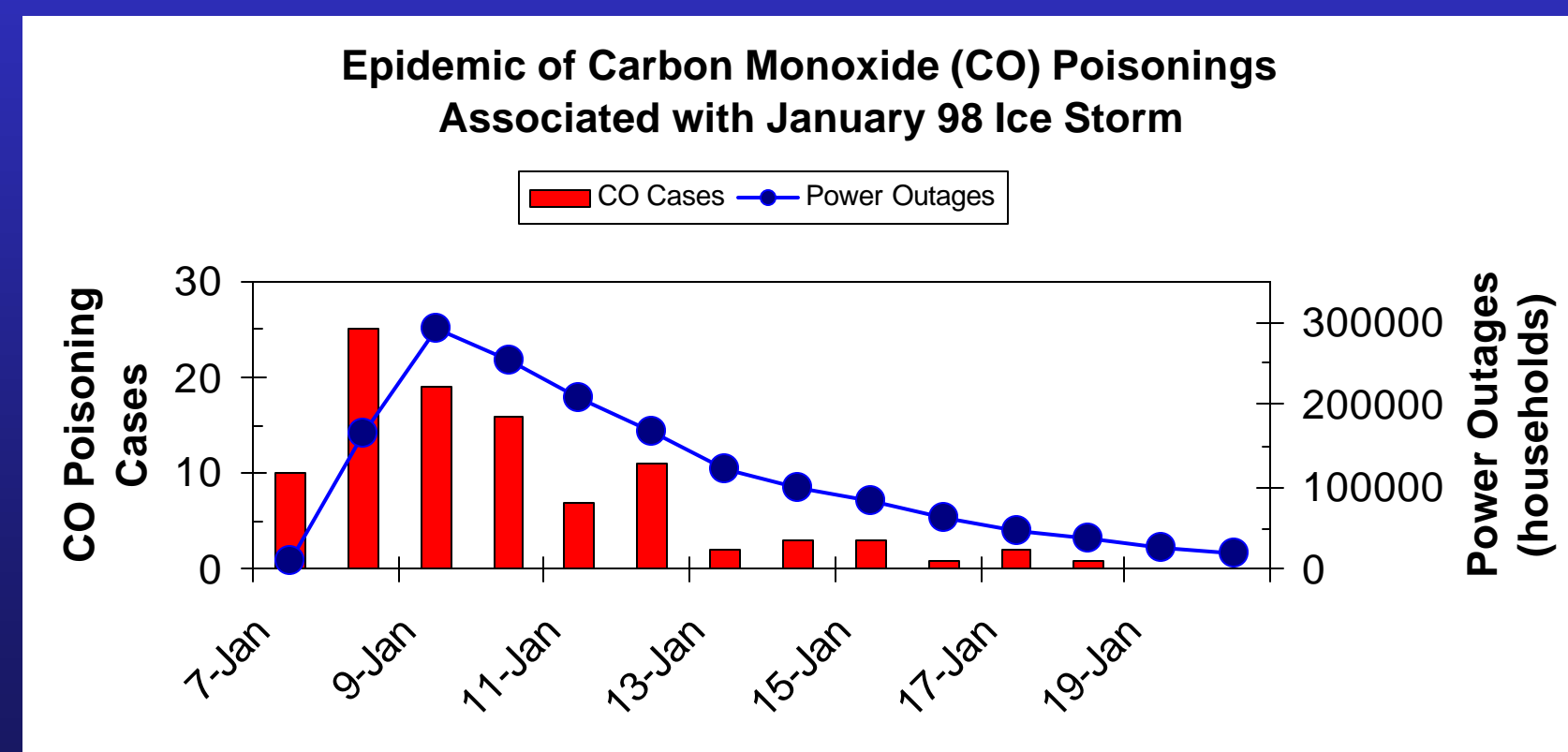


Alternative heat and power sources

Portland Press Herald

Environmental Public Health Tracking

- *Example* – Syndromic surveillance of CO poisoning during a power outage.

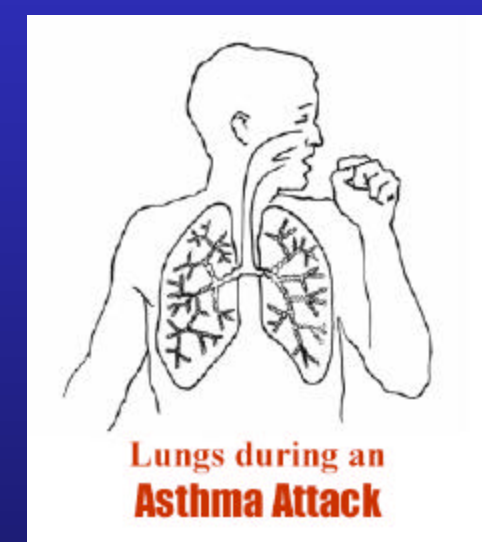


Environmental Public Health Tracking

- *The Need* – A tracking system that would show the effect of ambient air pollution on public health.



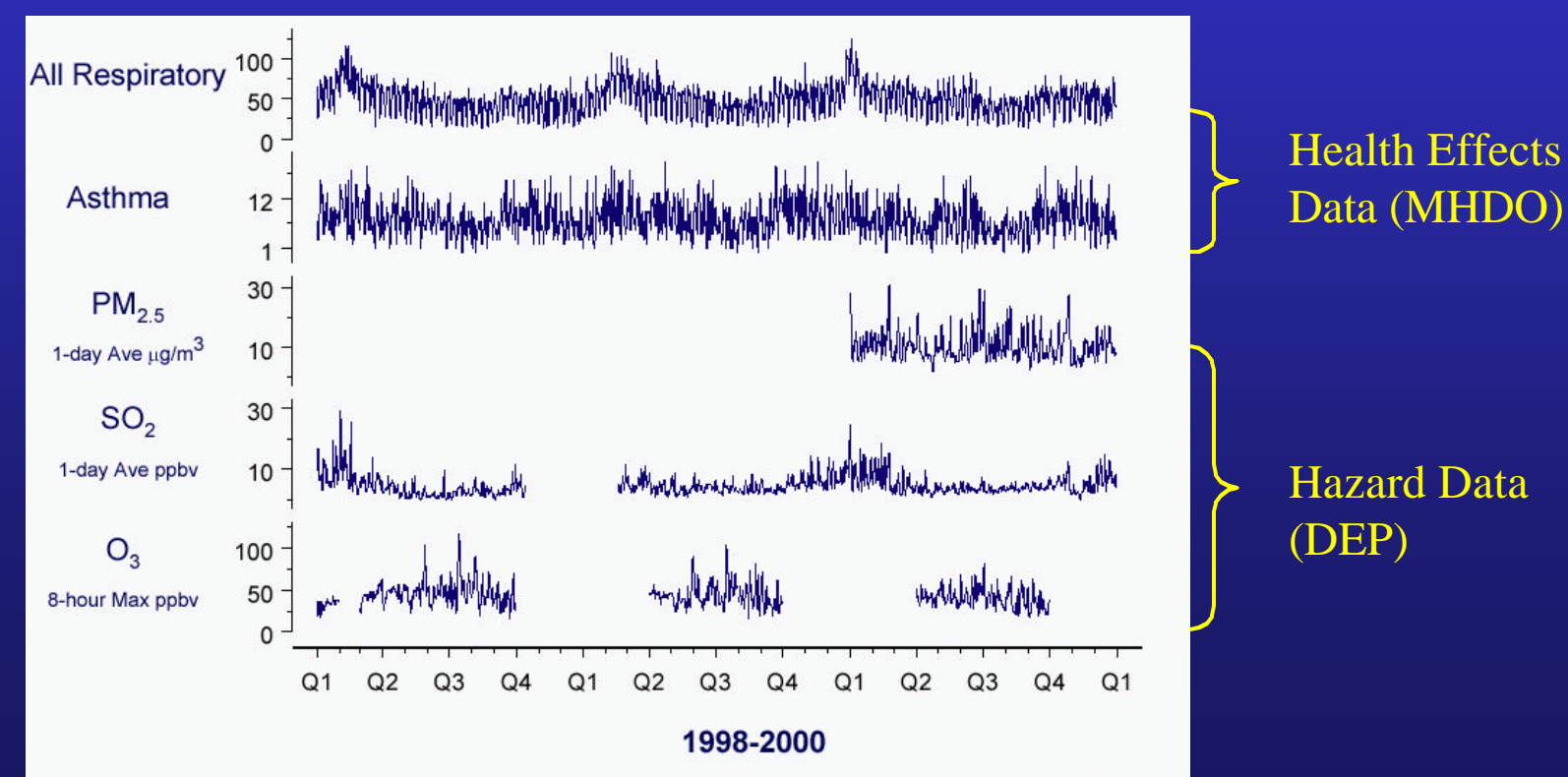
Maine's southern coastal counties experience about a dozen unhealthy ozone days every summer.



Ozone is a respiratory irritant that can aggravate asthma.

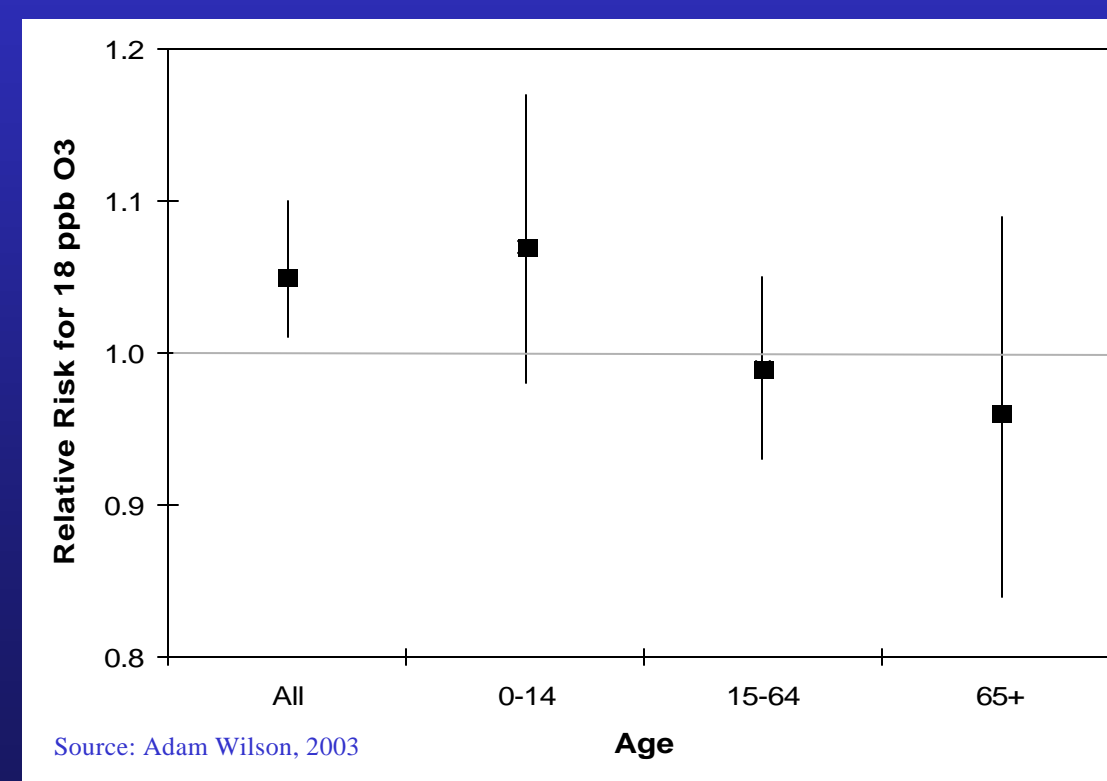
Environmental Public Health Tracking

- *Example* – Linkage of ambient air pollution data with hospital in-patient and out-patient data.



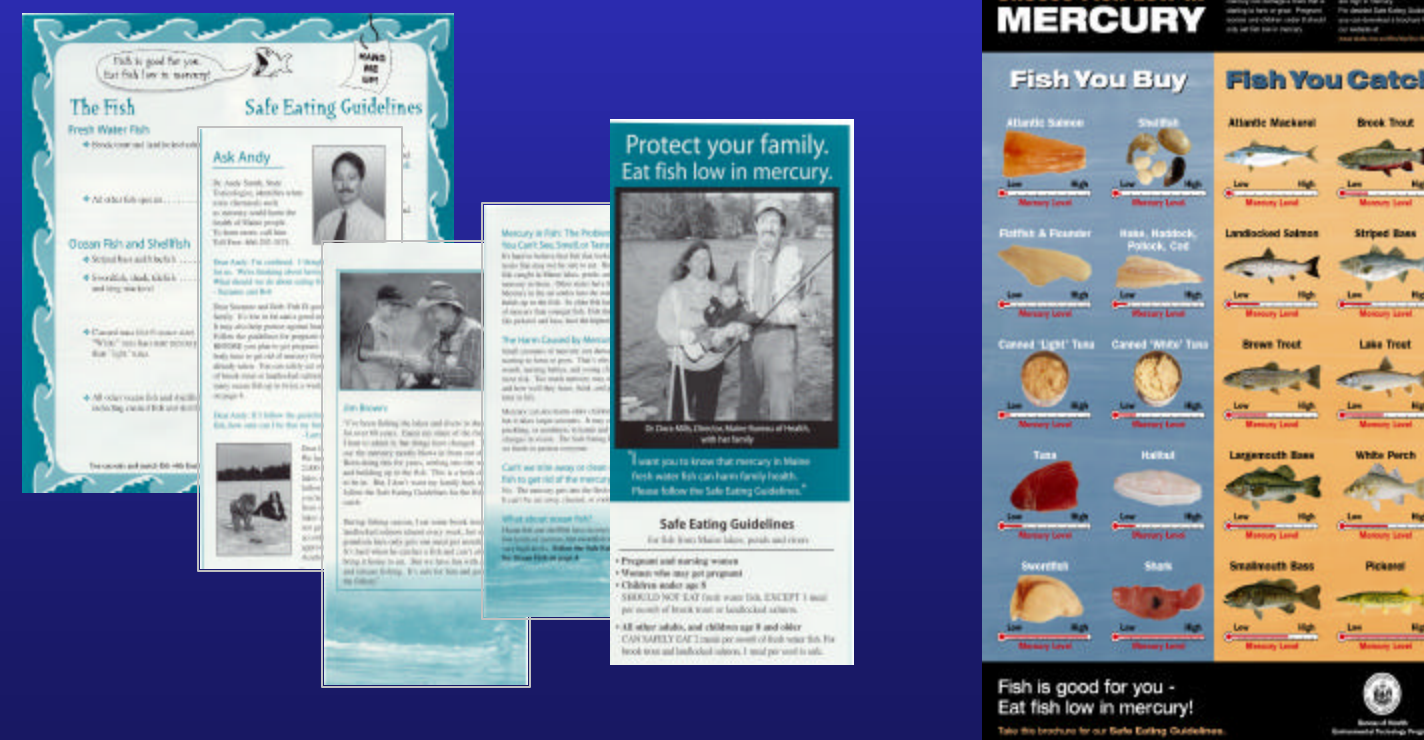
Environmental Public Health Tracking

- *Example* – Linkage of ambient air ozone data with Emergency Department acute asthma visits data via Time-Series analyses.



Environmental Public Health Tracking

- **The Need** – A tracking system that would measure the effectiveness of intervention efforts to reduce methylmercury exposure among pregnant women.



Environmental Public Health Tracking

- *Example* – A tracking system for hair mercury levels in women who recently gave birth, coupled with survey data on awareness of safe-eating guidelines for fish.

TABLE 1. Selected percentiles and geometric means of blood and hair mercury (Hg) concentrations for children aged 1–5 years and women aged 16–49 years — National Health and Nutrition Examination Survey, United States, 1999

	Geometric			Selected percentiles (95% CI*)					
	No.	mean	(95% CI)	10th	25th	50th	75th	90th	
BloodHg[†]									
Children	248	0.3	(0.2–0.4)	<LOD [‡]	<LOD	0.2 (0.2–0.3)	0.5 (0.4–0.8)	1.4 (0.7–4.8)	
Women	679	1.2	(0.9–1.6)	0.2 (0.1–0.3)	0.5 (0.4–0.7)	1.2 (0.8–1.6)	2.7 (1.8–4.5)	6.2 (4.7–7.9)	
Hair Hg[¶]									
Children	338	— ^{**}		<LOD	<LOD	<LOD	0.2 (0.1–0.4)	0.4 (0.3–1.8)	
Women	702	—		<LOD	<LOD	0.2 (0.2–0.3)	0.5 (0.4–0.8)	1.4 (0.9–1.7)	



March 02, 2001 / 50(08);140-3

Environmental Public Health Tracking

The Need – How can we approach EPH tracking from the disease-side of the equation to learn more about environmental factors?

- Cancer Registry
- Birth Defects Registry
- Asthma Registry
- Vital Statistics



Environmental Public Health Tracking

Maine's Cooperative Agreement with CDC

Purpose of Cooperative Agreement

- “Develop plans and components of a standards based, coordinated, and integrated environmental public health tracking (surveillance) system at the state and national levels that allows linkage and reporting of health effects data and human exposure data and environmental hazard data.”
- “Increase environmental public health capacity at the local, state and national level.”



Environmental Public Health Tracking

Maine's Cooperative Agreement with CDC

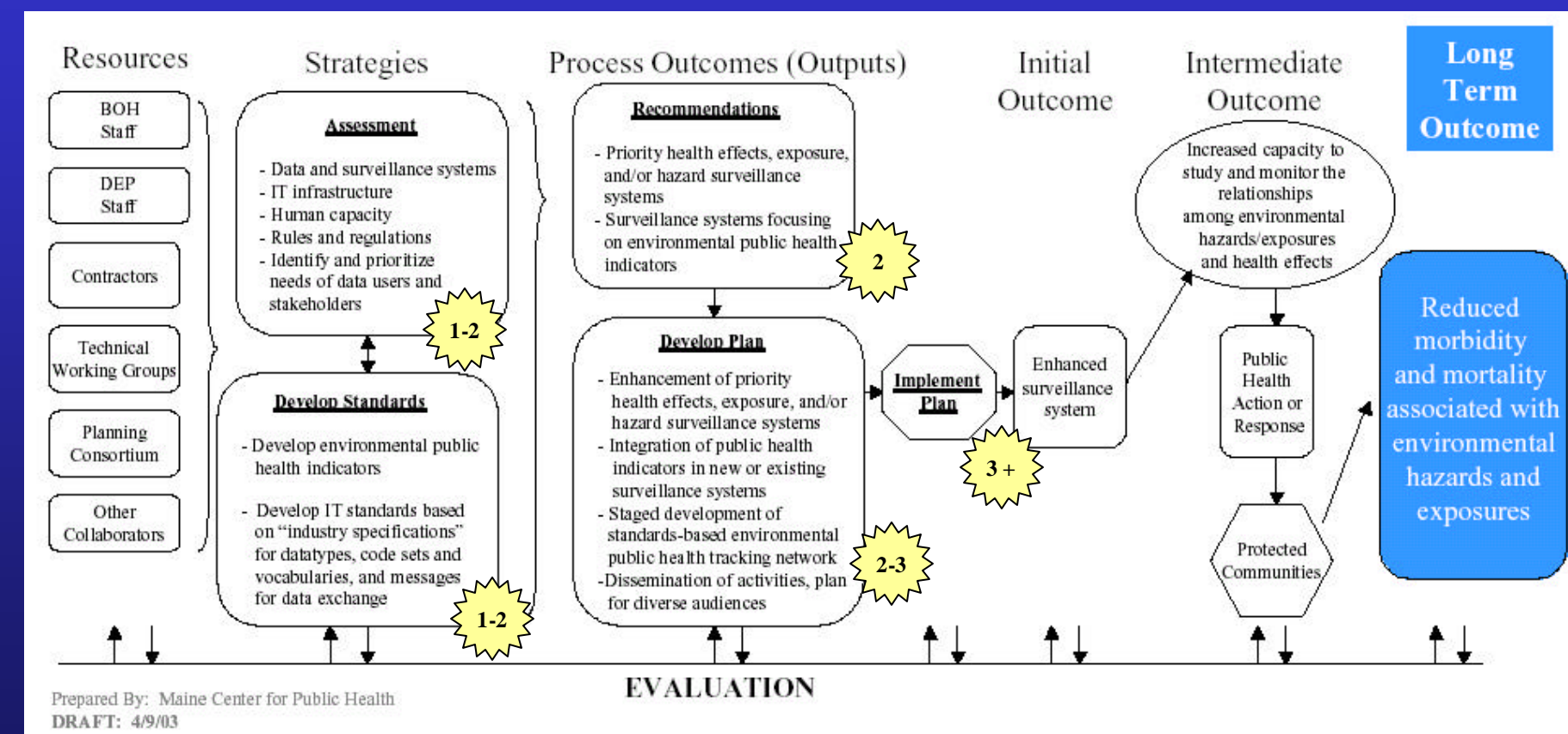
Maine's Award from CDC – Update

- Planning grant (with specific recipient activities)
- \$560,000 per year
- Up to 3-years of funding
- Non-competitive renewals, conditional on funding & progress on work plans
- Year 02 funding has been approved
- CDC has made a site visit



Environmental Public Health Tracking

CONCEPTUAL (LOGIC) MODEL for WORKPLAN



Environmental Public Health Tracking

Maine's Cooperative Agreement with CDC

Year-01 Activities

- Inventory and evaluate databases
- Assess feasibility of a Environmental Public Health Indicators
- Build Capacity – personnel and infrastructure
- Support continued development of ALAM's RHIME system
- Establish a Planning Consortium



Environmental Public Health Tracking

Database Inventory & Evaluation

Database Evaluation Process

- Review Criteria
 - ✓ CDC's Updated guidelines for evaluating public health surveillance systems (2001)
 - ✓ CDC's supplementary guidance for database inventory projects (2003)
 - ✓ PHRG's Total Data Quality Management Model
- Assessment Protocol
 - ✓ Structured reviews of written materials
 - ✓ Interviews with database administrator / manager
 - ✓ Verification with database administrator

Environmental Public Health Tracking

Database Inventory & Evaluation

Database Evaluation Reports

- Narrative Summary
 - ✓ Database Goals, Coverage & Data Elements, Data Flow, Data Management, Data Security & Release, Data Linkage, Evaluation
- Table with Responses to Evaluation Criteria
- Data Flow Schematic
- Background Appendices
 - ✓ Data Collection / Reporting Forms
 - ✓ Data Definitions
 - ✓ Legs and Regs

Environmental Public Health Tracking

Databases Inventoried & Evaluated

Health-Effect Databases Evaluated

- MHDO Hospital Inpatient Database
- MHDO Hospital Outpatient/Emergency Dept. Database
- Maine Medicaid Database
- Maine Cancer Registry
- Maine Birth Defects Registry
- Maine PRAMS
- Maine BRFSS
- Vital Records Databases (Birth & Death Certificates)

Environmental Public Health Tracking

Databases Inventoried & Evaluated

Environmental Hazard / Exposure Databases Evaluated

- Maine Childhood Lead Poisoning Database
- Maine Adult Blood Lead Epidemiological Surveillance Database
- Maine Radon Registration Act Database
- Maine Safe Water Drinking Information System
- Maine Health & Environmental Testing Laboratory Water Testing Database

Environmental Public Health Tracking

Environmental Public Health Indicators Project

Activity - 2(o): “Examine the feasibility of using the Environmental Public Health Indicators (EPHI) Project for surveillance...”

“Determine how proposed EPHTI’s are...”

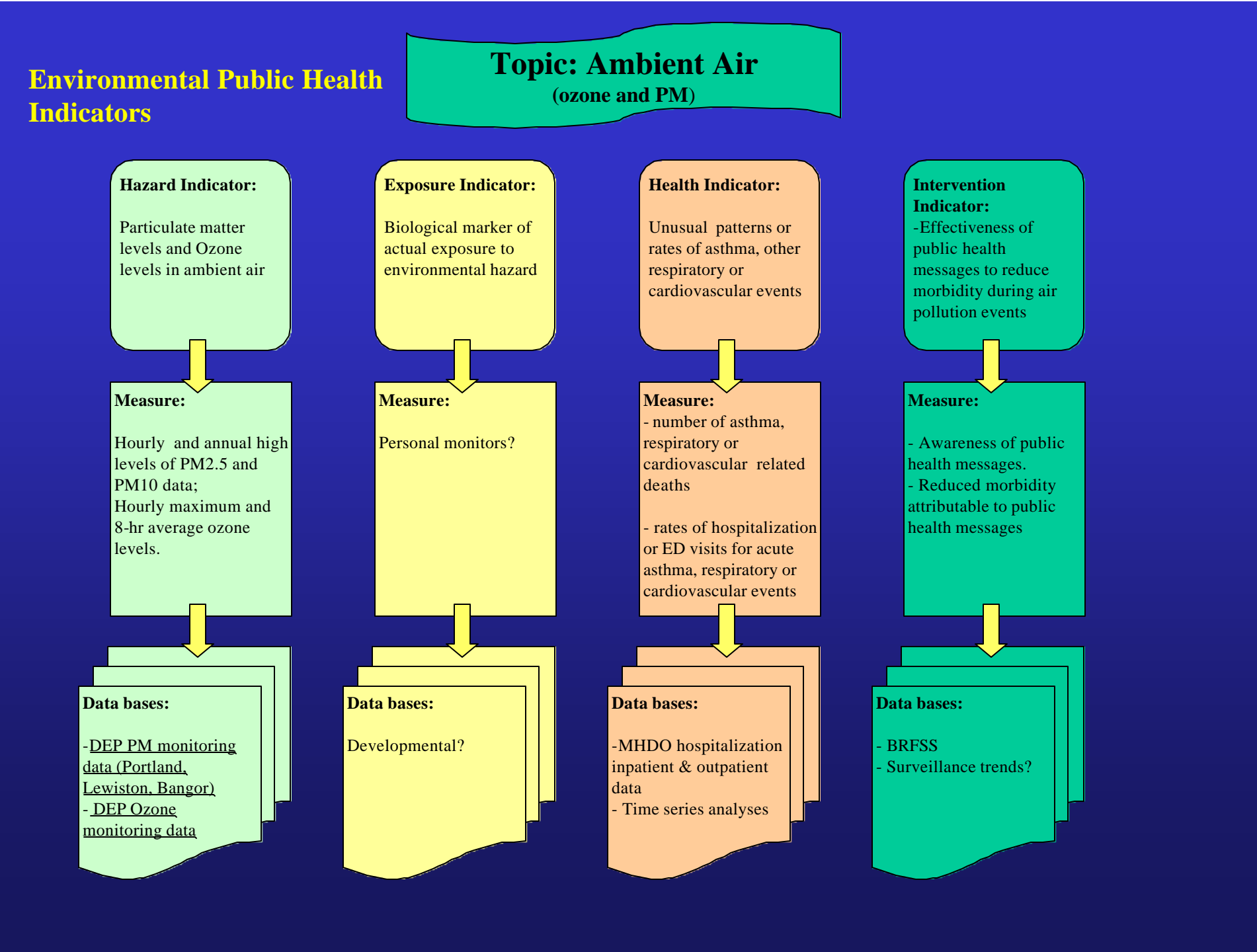
- realistic in terms of data availability & integration
- consistent with state & local priorities
- useful for program/policy planning
- useful for community health assessment

Environmental Public Health Tracking

Environmental Public Health Indicators Project

Core CSTE/CDC Environmental Public Health Indicators

- Ambient air
- Indoor air
- Disasters
- Lead
- Noise
- Sun & UV light
- Toxics & Waste
- Ambient Water
- Drinking Water



Environmental Public Health Tracking

Environmental Public Health Indicators Project

Candidates for Priority EPHI's for Maine...

- ozone & rates of ED visits for acute asthma events
- carbon monoxide poisoning during power outages
- hair mercury levels and fish consumption among pregnant women
- arsenic in drinking water
- blood lead for children and adults
- indoor air levels of radon

Environmental Public Health Tracking

Environmental Public Health Indicators Project

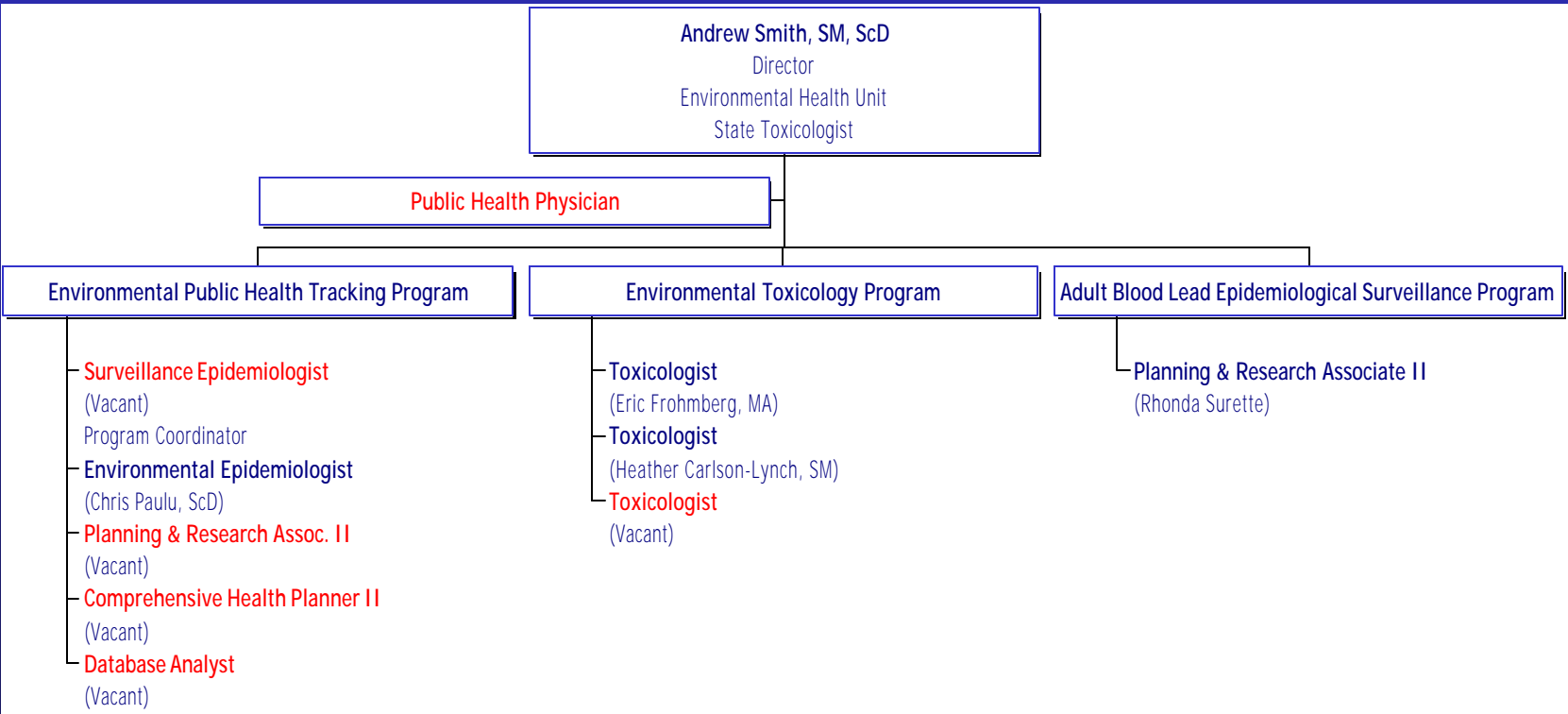
Progress on ambient air ozone / ED asthma visits surveillance system

- Engaged in “visioning” sessions with database managers, analysts, stakeholders
- Efforts to enhance ozone monitoring data
- Developed a proposal for a data linkage project
- Building “knowledge” capacity

Environmental Public Health Tracking

Capacity Building - Personnel

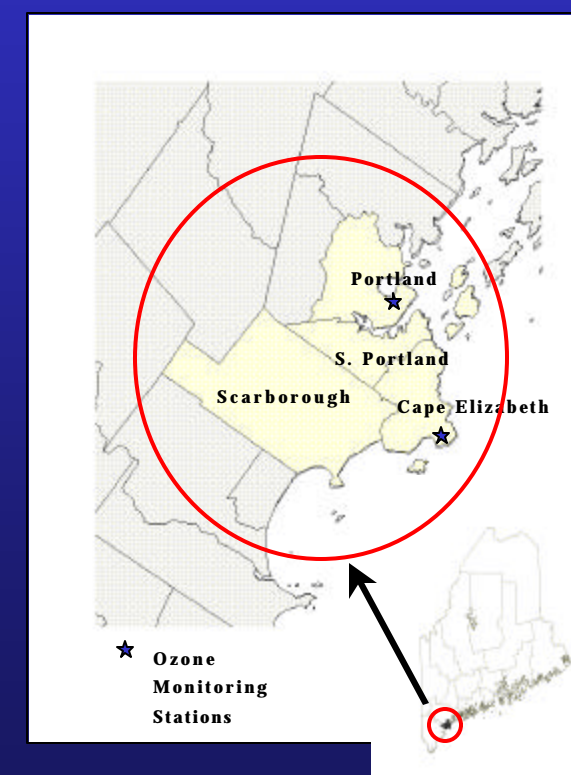
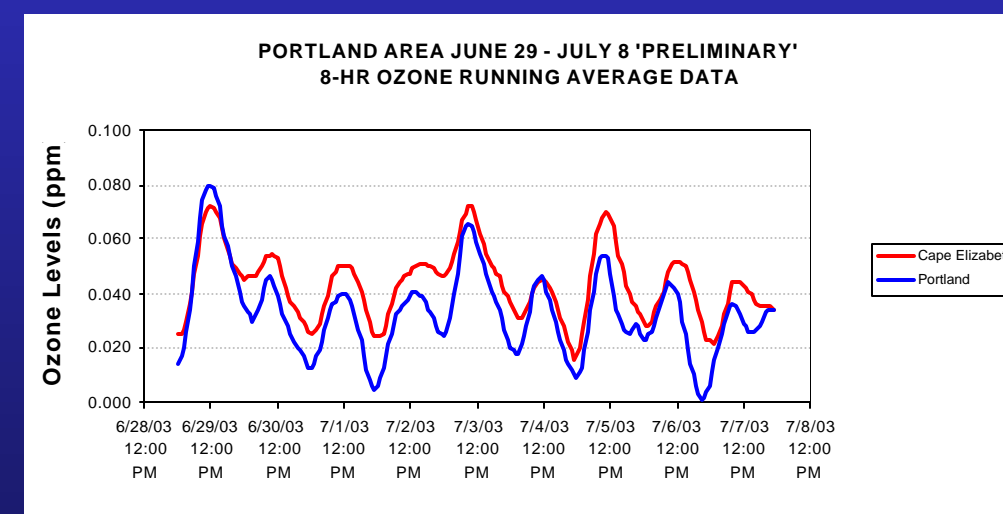
EPHT Grant Purpose #2: “Increase environmental public health capacity at the local, state and national level.”



Environmental Public Health Tracking

Capacity Building – Enhance Hazard, Exposure, & Health Effect Systems

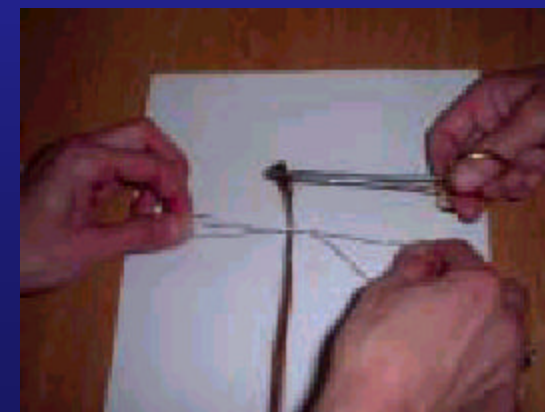
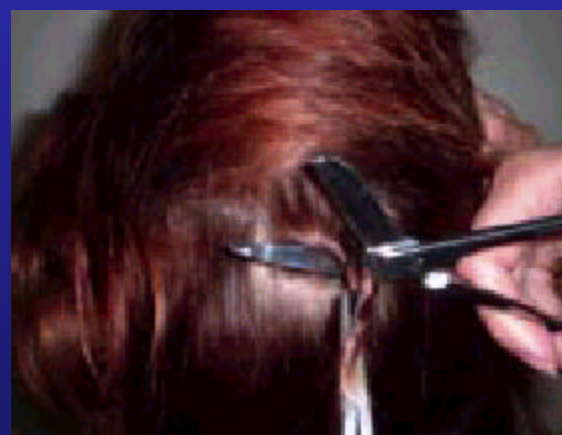
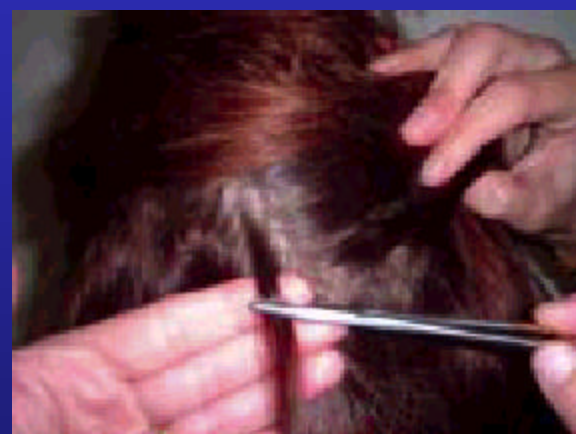
- **Hazard Tracking** – Enhanced ozone monitoring system for Portland, ME



Environmental Public Health Tracking

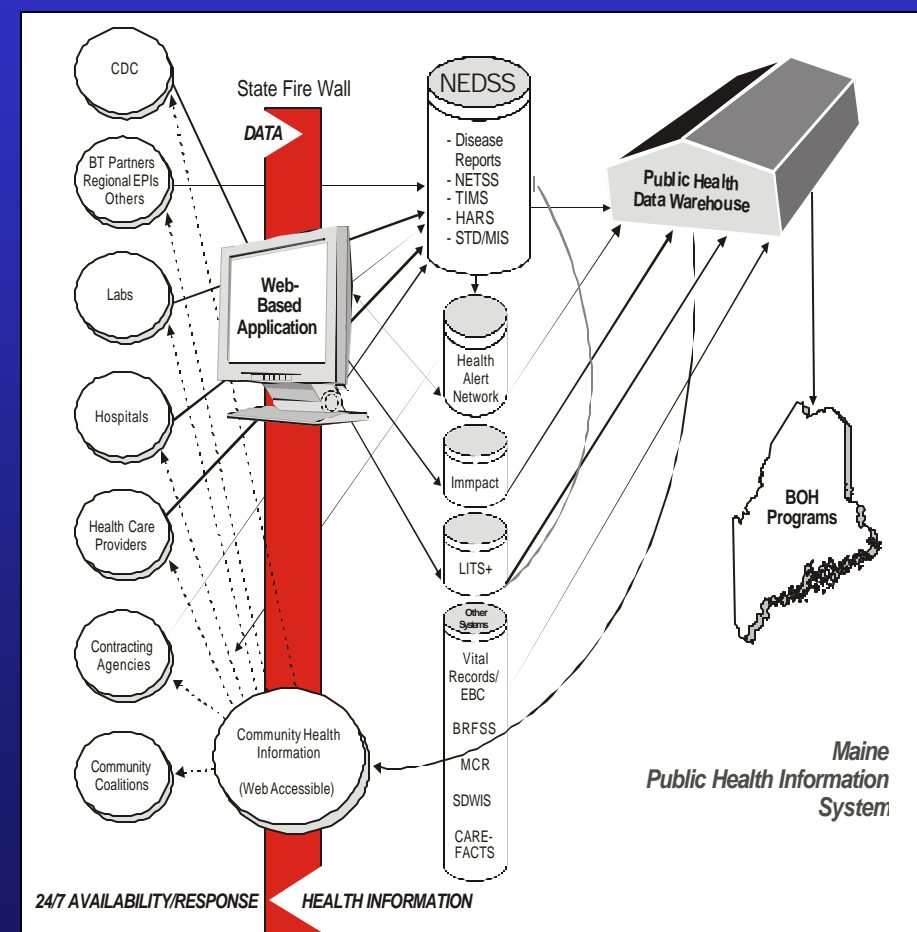
Capacity Building – Enhance Hazard, Exposure, & Health Effect Systems

- ***Exposure Tracking***– developing capability at BOH / HETL to perform hair mercury biomonitoring



Environmental Public Health Tracking

Capacity Building – IT Infrastructure



- BOH has begun the IPHIS development process, supported by bioterrorism funds – Base system to be operational in 2005
- EPHT system will exist within IPHIS
- CDC is developing a NEDSS PAM for childhood and blood lead surveillance systems

Environmental Public Health Tracking

CDC Site Visit – October 20, 21st 2003

Year 02 Major Activities

- Personnel Capacity Building – hire all staff, set-up new office for EHU
- IT Capacity Building – Integrate the needs of a EPHT Program into the IPHIS development plan; support enhanced priority data systems
- Identify Priority Environmental Public Health Indicators
- Inventory & evaluate environmental hazard databases
- Continue with feasibility analyses of an ambient air ozone / ED asthma visits surveillance system
- Develop and evaluate strategies for communicating results from a EPHT system